

AMS also provides laboratory testing for exporters of domestic food commodities in keeping with sanitary and phytosanitary requirements of foreign countries. To date, this service has been requested by exporters of products destined for Japan, South Korea, and other Pacific Rim countries, South Africa, European Union member countries, and countries of the former Soviet Union.

For selected fruits, vegetables, nuts (including peanuts), and specialty crops imported into the United States, minimum quality requirements must be met. For the most part, however, firms importing agricultural products into the United States use grading services voluntarily. AMS graders are often asked to demonstrate commodity quality standards and grading procedures to foreign firms and governments.

In addition to grading and certification services, AMS market news offices provide information on sales and prices of both imports and exports. Today, U.S. market participants can receive market information on livestock and meat from Venezuela, New Zealand, Japan, Poland, and other Pacific Rim markets, Mexico, Canada, Australia, and New Zealand; fruits and vegetables from France, Great Britain, Bulgaria, Poland, Mexico, New Zealand, and Canada; ornamentals from Germany, France, and Mexico; dairy products from Eastern and Western Europe and Oceania; and a host of products from Ukraine, Kazakhstan, and Russia.

AMS participates in a number of international forums that aim to facilitate world agricultural trade and avoid potential trade barriers. Technical assistance has been provided to countries in Eastern and Central Europe, and elsewhere around the globe, to improve their marketing systems. With improved transportation, distribution, and marketing information systems, these countries will become better customers for U.S. food and fiber products.

Whether at home or abroad, AMS strives to help U.S. agriculture market its abundant, high-quality products. And AMS will continue to work to help U.S. agriculture market its products in growing world markets, while assuring U.S. consumers an abundant supply of high-quality, wholesome food at reasonable prices.

## ■ Animal and Plant Health Inspection Service: Protecting Agricultural Health and Productivity

**W**hy are the farmers and ranchers of the United States able to produce so much food for the tables of America's consumers?

Of course, there's no simple answer. But one key to this plentiful supply of food can be summed up in a single phrase: "Healthy crops and livestock."

And this is no accident. America's agricultural health is a result of a team effort—good husbandry by farmers and ranchers plus an organized effort to control and eradicate pests and diseases and to prevent the entry of devastating foreign plagues.

Just like frosts, floods, and droughts, pests and diseases can wreak havoc on agricultural productivity, depressing farm incomes and driving up food costs for consumers in the process. While we may not be able to prevent weather-related disasters,

USDA plays a vital role in protecting our country's agricultural health. The result is a more abundant, higher quality, and cheaper food supply than is found anywhere else in the world.

If agriculture is this foundation of manufacture and commerce, there is perhaps no greater mission than making sure that foundation remains healthy and strong. With the advent of free trade initiatives, a global network of countries has agreed that valid agricultural health concerns—not politics, not economics—are the only acceptable basis for trade restrictions. In this environment, our country's agricultural health infrastructure will be our farmers' greatest ally in seeking new export markets.

## Excluding Foreign Pests and Diseases

### **Agricultural Quarantine Inspection**

Agriculture, America's biggest industry and its largest employer, is under constant threat of attack. The enemies are countless and often microscopic, and they gain access to our country in surprising ways. Their potential allies are every traveler entering the United States and every American business importing agricultural products from other countries.

Many passengers entering the United States don't realize that one piece of fruit packed in a suitcase has the potential to cause millions of dollars in damage to U.S. agriculture. Forbidden fruits and vegetables can carry a whole range of plant diseases and pests. Oranges, for example, can introduce diseases like citrus canker or pests like the Mediterranean fruit fly (Medfly).

Similarly, sausages and other meat products from many countries can contain animal disease organisms that can live for many months and even survive processing. Meat scraps from abroad could end up in garbage that is fed to swine. If the meat came from animals infected with a disease, such as African swine fever, classical swine fever, or foot-and-mouth disease (FMD), it could easily be passed to domestic swine, and a serious epidemic could result. An outbreak of African swine fever in U.S. hogs would drive up the price of pork to consumers, cost hundreds of millions of dollars to eradicate, and close many U.S. export markets.

USDA's Animal and Plant Health Inspection Service (APHIS) safeguards U.S. borders against the entry of foreign agricultural pests and diseases. At all airport terminals, seaports, and border stations, about 1,600 Plant Protection and Quarantine (PPQ) employees inspect international conveyances and the baggage of passengers for plant and animal products that could harbor pests or disease organisms. At international airports, detector dogs in APHIS' Beagle Brigade help find prohibited agricultural materials. PPQ officers also inspect ship and air cargoes, rail and truck freight, and package mail from foreign countries. At animal import centers, APHIS veterinarians check animals in quarantine to make sure they are not infected with any foreign pests or diseases before being allowed into the country.

The following table provides selected inspection and interception data:

<i>FY</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>
Ships Inspected	53,270	52,661	52,974	52,348	50,778
Aircraft Inspected	451,342	401,741	410,318	461,927	422,735
Passengers and Crew Inspected	62,548,979	65,645,734	66,119,960	68,448,289	72,191,992
Interceptions of Plant Material	1,442,214	1,583,687	1,567,886	1,609,370	1,480,773
Interceptions of Pests	54,831	58,032	48,483	62,830	52,761
Interceptions of Meat/Poultry Products	281,230	223,392	264,001	294,674	331,616
Baggage Civil Penalties-Number	22,164	21,813	20,716	21,498	19,302
Baggage Civil Penalties-Amount of Fines	\$1,186,310	\$1,098,220	\$1,080,000	\$1,107,670	\$1,004,725

From high-tech to a keen nose, APHIS uses a variety of means to safeguard American agriculture. PPQ officers augment visual inspection with some 130 x-ray units that help check passenger baggage and mail for prohibited agricultural materials. They also have enlisted trained detector dogs and their keen sense of smell to help sniff out prohibited fruit and meat. On leashes and under the constant supervision of their handlers, the friendly beagles in USDA's Beagle Brigade have checked the baggage of passengers arriving from overseas for 15 years. Currently, APHIS has about 48 canine teams at 21 airports, including 19 of America's 20 busiest international airports.

### Preclearance—Checking at the Source

In addition to domestic exclusion efforts, APHIS has a corps of experts stationed overseas, sometimes with the help of APHIS officers on temporary duty, that bolsters the Nation's defenses against exotic pests and diseases. Often it is more practical and effective to check and monitor commodities for pests or diseases at the source through preclearance programs. APHIS has special arrangements with a number of countries for preclearance programs, which are summarized in the table.

### International Programs

Through direct overseas contacts, International Services (IS) employees gather and exchange information on plant and animal health; work to strengthen national, regional, and international agricultural health organizations; and cooperate in international programs against certain pests and diseases that directly threaten American agriculture. Two of the latter are the MOSCAMED program—which combats Medfly infestations in Mexico and Guatemala—and a program to eradicate screwworms, a parasitic insect of warm-blooded animals. Screwworm flies lay their eggs on the edge of open wounds, and the developing larvae feed on the living flesh of the host. Left untreated, the infestation can be fatal.

<i>Country</i>	<i>Commodities</i>
Argentina	Apples & pears
Belgium	Flower bulbs
Brazil	Mangoes
Chile	Stonefruit, berries, grapes, cut flowers, cherimoya, kiwifruit, other fruits & vegetables
Costa Rica	Mangoes
Ecuador	Mangoes & melons (free zone)
Great Britain	Flower bulbs
Guatemala	Mangoes
Haiti	Mangoes
Ireland	Flower bulbs
Israel	Flower bulbs
Jamaica	Ugli fruit, cut flowers, papaya & 46 other commodities
Japan	Sand pears, Unshu oranges, Fuji apples
Korea	Sand pears, mandarin oranges
Mexico	Mangoes, citrus (fumigation or from Sonora free zone), apples, apricots, peaches, persimmons, & pomegranates (Sonora free zone)
New Zealand	Apples, pears, Nashi pears
The Netherlands	Flower bulbs
Nicaragua	Mangoes
Peru	Mangoes
Scotland	Flower bulbs
South Africa	Apples, pears, plums, grapes, peaches, nectarines, & citrus
Spain	Lemons, clementines, Valencia oranges
Turkey	Flower bulbs
Venezuela	Mangoes

Screwworms were eradicated from the United States through the use of the sterile insect technique. With this method, millions of screwworm flies are reared in captivity, sterilized, and then released over infested areas to mate with native fertile flies. Eggs produced through such matings do not hatch, and the insect literally breeds itself out of existence.

To provide further protection to U.S. livestock, starting in 1972, eradication efforts were moved southward from the U.S.-Mexico border, with the eventual goal of establishing a barrier of sterile flies across the Isthmus of Panama. To date, screwworms have been eradicated from Mexico, Guatemala, Belize, Honduras, El Salvador, and Nicaragua. Eradication is well advanced in Costa Rica and as of June 1999, no new cases had been reported since March 18, 1999. Eradication in Panama began in 1998, and a new rearing facility is planned. Currently, the production plant at Tuxtla Gutierrez, Chiapas in Mexico is producing 143 million sterile flies weekly. The plant has the capacity to produce 500 million sterile flies weekly.

IS also works to prevent foot-and-mouth disease (FMD) from entering Mexico, Central America, and Panama and works with Colombia to eliminate FMD from the northern part of that country.

## Coping with Invasions

If, despite our best efforts, foreign pests or diseases do manage to slip past our border defenses, APHIS conducts appropriate control and eradication measures. Examples include Mediterranean fruit fly eradication projects in California in the early 1990's and outbreaks of exotic Newcastle disease in pet birds in several States during the 1980's.

APHIS PPQ has a special cadre of people who deal with introductions of exotic plant pests. Known as "Rapid Response Teams," these groups have been mobilized on several occasions to combat costly infestations of Medflies and to perform other tasks.

Early detection of exotic animal diseases by alert livestock producers and practicing veterinarians who contact specially trained State and Federal veterinarians is the key to their quick detection and elimination. More than 300 such trained veterinarians are located throughout the United States to investigate suspected foreign diseases. Within 24 hours of diagnosis, one of two specially trained task forces in APHIS' Veterinary Services (VS) can be mobilized at the site of an outbreak to implement the measures necessary to eradicate the disease.

Currently, APHIS officials are actively working to prevent the entry of bovine spongiform encephalopathy (BSE)—sometimes referred to as "mad cow disease." This disease has had a serious impact on the British livestock industry. BSE has never been diagnosed in the United States. Since 1989, APHIS has restricted the importation of live ruminants and ruminant products—including animal feed made with ruminant protein—from Great Britain and other countries where BSE is known to exist. In addition, APHIS has conducted a BSE surveillance program since 1989. Specialists have examined brain specimens from more than 7,052 cattle and have found no evidence of BSE.

## Import-Export Regulations

APHIS is responsible for enforcing regulations governing the import and export of plants and animals and certain agricultural products.

Import requirements depend on both the product and the country of origin. Plants and plant materials usually must be accompanied by a phytosanitary certificate issued by an official of the exporting country. Livestock and poultry must be accompanied by a health certificate, also issued by an official of the exporting country. Animal products, such as meats and hides, are usually restricted if they originate in countries that have a disease that is not present in the United States.

APHIS regulates the importation of animals that enter the country through land ports along the borders with Mexico and Canada. Imports of livestock and poultry from most countries must be quarantined at one of three animal import centers: Newburgh, NY; Miami, FL; and Los Angeles, CA.

Personally owned pet birds can enter through one of five USDA-operated bird quarantine facilities: New York, NY; Miami, FL.; San Ysidro, CA.; Hidalgo, TX; and Los Angeles, CA. Those that qualify as U.S.-origin birds may return through any port of entry when arrangements have been made for a USDA-VS veterinarian to inspect their bird.

Pet birds from Canada can enter without quarantine because Canada's animal disease programs and import rules are similar to those of the United States. Commercial shipments of pet birds can enter through one of the privately owned, APHIS-supervised quarantine facilities. APHIS cooperates with the U.S. Department of Interior in carrying out provisions of the Endangered Species Act that deal with imports and exports of endangered plant, animal, or bird species. APHIS inspectors at ports of entry are trained to identify these species and notify Interior of any Convention on International Trade in Endangered Species (CITES)-protected species found during inspection. Also, at many ports, APHIS officers inspect and sample seed imported from foreign countries to ensure that it is accurately labeled and free of noxious weeds.

APHIS also maintains 16 plant inspection stations, the largest of which is at Miami, FL, for commercial importation of plant materials. Smaller stations are at Orlando, FL; San Juan, PR; JFK International Airport, Jamaica, NY; Elizabeth, NJ; Houston, El Paso, and Los Indios (Brownsville), TX; Nogales, AZ.; San Diego, Los Angeles, and San Francisco, CA; Seattle, WA; Honolulu, HI; Beltsville, MD; and New Orleans, LA.

To facilitate agricultural exports, APHIS officials certify the health of both plants and animals that are shipped to foreign countries. APHIS PPQ provides assurance that U.S. plants and plant products meet the plant quarantine import requirements of foreign countries. This assurance is in the form of a phytosanitary certificate, issued by PPQ or its State cooperators. During fiscal year (FY) 1997, 298,365 phytosanitary certificates were issued for exports of plants and plant products worth more than \$20 billion.

VS officials and the National Center for Import and Export negotiates animal health requirements for export of livestock, germplasm, poultry and animal products with the importing countries. These requirements are maintained in the International Regulations Retrieval System (IRRS). VS area offices and major exporters have access to the system. IRRS is also available on the World Wide Web.

USDA accredited veterinarians issue health certificates in order to meet the U.S. requirements and the requirements of the recipient country. These health certificates are endorsed by VS area veterinarians in the State of origin. The final inspection of livestock is conducted by a VS port veterinarian at the port of embarkment. This inspection is not required for livestock shipped to Canada and Mexico if they are shipped through land border ports.

It is in the area of foreign health requirements that APHIS is of greatest help to the U.S. livestock industry. Through direct negotiations with foreign governments, APHIS has established approximately 450 livestock, semen, embryo and poultry health agreements with more than 100 countries in the world. These negotiations are a continuous process, wherever APHIS finds opportunities to open new markets, and to reduce unnecessary impediments or whenever changing disease conditions require adjustments. In 1996, APHIS averted a ban of U.S. poultry meat to Russia and China worth more than \$2 billion.

In addition to certifying to the health of agricultural exports, APHIS officials mount a proactive approach to the marketing of U.S. crops and livestock overseas.

For instance, APHIS and Food Safety and Inspection Service officials coordinated negotiations to avert a Russian embargo on U.S. poultry exports worth \$600 million a year. On the plant side, efforts by APHIS and Foreign Agricultural Service officials helped maintain U.S. wheat exports after the March 1996 discovery of an outbreak of Karnal bunt, a fungal disease of wheat, in Arizona. The United States is the world's leading wheat exporter, accounting for 25 percent of world wheat exports in 1997. U.S. wheat exports in calendar 1997 were valued at \$3.4 billion.

## ■ Domestic Plant Health Programs

**I**n most cases, plant pest problems are handled by individual farmers, ranchers, and other property owners and their State or local governments. However, when an insect, weed, or disease poses a particularly serious threat to a major crop, the Nation's forests, or other plant resources, APHIS may join in the control work.

Most pests and weeds that are targets of APHIS' Plant Protection and Quarantine (PPQ) programs are not native to America. They gained entry into this country through commercial trade channels, international travelers, or other means.

When pests are new to this country, control techniques may not be available. In any case, PPQ applies interstate quarantines and takes other steps to prevent spread until effective control measures can be developed.

In many cases, foreign pests are only minor problems in their native lands because they are kept in check by native parasites, predators, and diseases. Since many of these natural enemies may not exist in the United States, one of PPQ's control techniques—in cooperation with USDA's Agricultural Research Service—is the importation, rearing, and release of parasites and other biological control organisms.

### **Biocontrol—Nature's Way**

In its classical sense, biological control means using predators, parasites, and pathogens to combat plant pests. Predators and parasites include insects, mites, and nematodes that naturally attack a target pest. Pathogens include bacteria, viruses, or fungi that cause diseases specifically injurious to a target pest.

Biological control was first put to broad, practical use in the United States in the 1880's. At that time, California citrus groves were being devastated by an exotic insect, the cottony-cushion scale. A USDA scout working in Australia found the vedalia beetle feeding on the scale insect. The beetle, part of the lady beetle family, was successfully introduced into California and other citrus-growing regions and has kept the scale insect from causing economic damage ever since.

To coordinate the important search for new and better biocontrol opportunities, a National Biological Control Institute was established in APHIS in 1989. The Institute's mission is to promote, facilitate, and provide leadership for biological control. Its main work is to compile and release technical information and coordinate the work needed to find, identify, and augment or distribute new biological control agents.

The Institute relies on scientists from USDA's Agricultural Research Service and elsewhere to identify potentially useful biological control agents. These agents are carefully screened at quarantine centers before being put to use.

Various agencies have successfully cooperated on biocontrol projects. For example, several decades ago, ARS scientists found six species of stingless wasps in Europe that keep alfalfa weevils in check. In 1980, APHIS took on the job of establishing these beneficial wasps across the land. Between 1980 and 1989, APHIS and its cooperators raised and distributed about 17 million wasps, and today there are beneficial wasps within reach of virtually every alfalfa field in the country. It's estimated that the benefits of the alfalfa weevil biocontrol program amount to about \$88 million per year, representing a return of about \$87 for each \$1 spent on the project.

Other APHIS biocontrol programs currently underway in cooperation with State agencies include efforts against the cereal leaf beetle, sweet potato whitefly, Colorado potato beetle, brown citrus aphid, pink hibiscus mealybug, gypsy moth, imported fire ant, leafy spurge, purple loosestrife, Russian knapweed, dalmatian and yellow toad-flax, diffuse and spotted knapweed. Promising biocontrol agents for other pests are being tested at PPQ biocontrol labs located at Mission, TX; Niles, MI; and Bozeman, MT.

### **“Deliver Us From Weevil”—Boll Weevil Eradication**

One major domestic program PPQ is coordinating is the effort to eradicate boll weevils from the United States. The boll weevil entered this country from Mexico in the late 1890's and soon became a major pest of cotton. It has caused an estimated \$12 billion in losses to the Nation's economy. In 1973, it was estimated that insecticides applied to control boll weevils accounted for about one-third of the total applied to agricultural crops in the United States.

The success of a 1971-73 cooperative boll weevil eradication experiment in portions of Mississippi, Louisiana, and Alabama involving Federal and State agencies and grower associations led to two 3-year demonstration projects. One was an eradication trial in North Carolina and Virginia; the second was an optimum pest management trial in Mississippi. The eradication trial was a success in 1980, and the program has undergone regular, incremental expansion since that time.

The current boll weevil eradication effort judiciously applies pesticides based on the number of adult weevils trapped around cotton fields. The traps contain a pheromone (insect attractant) and a small amount of insecticide that kills all captured weevils. In eradication program areas, one to three traps are placed per acre and are checked weekly. Pesticide is applied only to fields that reach a predetermined number of trapped weevils. This selective use of pesticides results in fields requiring minimal pesticide applications—sometimes none—during the growing season. After several seasons, the weevils are eradicated within the defined program area, eliminating any further need to spray for this pest. As an indirect benefit of eliminating the boll weevil, growers are able to maintain beneficial insects that help control many secondary pests. This further reduces the amount of pesticide used each season to produce the cotton crop.



The table below shows the progress in eradicating boll weevils from U.S. cotton-growing areas.

	<i>States involved</i>	<i>Eradication Acres</i>	<i>Weevil-free Acres</i>
1983	VA/NC/SC	160,000	35,000
1985	+CA/AZ	1,400,000	1,100,000
1987	+GA/FL/AL	450,000	1,500,000
1994	+MS/TN/TX	50,000	2,000,000
1996	Same	1,300,000	4,600,000
1997	+LA	1,600,000	4,600,000
1998	+OK	2,000,000	*4,600,000

\*significant acreage should move into “weevil-free” phase in 1999

In the cooperative boll weevil eradication program, APHIS provides technical support, a portion of program funds, and some capital equipment and administrative support. Grower assessments and/or State appropriations provided 87 percent of the total program cost in 1998, with APHIS providing the remaining 13 percent.

The economic benefit to cost ratio for the program has been projected to be 12 to1 nationwide, and as high as 40 to1 in specific areas of the Cotton Belt. The success of the program has brought a resurgence of cotton production and related industries. Acreage in the Southeast has increased nearly fourfold since the weevil’s eradication. Cotton growers in eradicated areas are better able to withstand difficult economic times, such as the low market prices of 1998, because their production costs—without the weevil—are much lower than those in the infested areas.

**Witchweed—A Success Story**

Witchweed is a parasitic plant that attaches itself to the roots of crops such as corn, sorghum, sugar cane, and other members of the grass family, robbing them of water and vital nutrients. Each plant can produce up to 500,000 seeds per year, and the seeds can remain viable in the soil for up to 15 years, germinating when they come into contact with the root of a host plant.

Witchweed was introduced into the Carolinas from Africa in the mid-1950’s. When the parasite first struck, corn plants mysteriously withered and died. A student visiting from India recognized the weed and told U.S. agricultural experts what it was.

Over the course of an eradication effort that began in 1974, some 450,000 acres have been infested. The eradication program was based on surveillance to locate infested fields, quarantines to prevent spread, and a combination of herbicides and germination stimulants to actually eradicate the weed.

At the beginning of FY 1995, with fewer than 28,000 infested acres remaining, APHIS turned operation of the program over to North Carolina to complete eradication there, but continues to help finish the eradication effort in South Carolina. By the fall of 1997, the infested area was expected to be reduced to 9,000 acres in North Carolina and 1,500 acres in South Carolina.

## Grasshoppers and IPM

APHIS was the lead agency in a cooperative Integrated Pest Management (IPM) initiative for grasshopper control in the Western United States. This IPM project, which began in 1987 and closed down in 1994, was aimed at finding better and more acceptable ways of preventing grasshopper damage, while protecting the environment. Activities included developing means to predict and manage grasshopper outbreaks, developing biological control alternatives that minimize the use of chemicals, and integrating proven control techniques into guidelines for APHIS rangeland grasshopper programs.

All this information was integrated into a computer-based decision support system program called "HOPPER." HOPPER is a user-friendly software package that facilitates grasshopper predictions, time and selection of control options, compilation of weather data, and analysis of the economics of range management practices. An example of how HOPPER is used was provided by a Logan County, CO, official in August 1996. He wrote: "I was recently asked to utilize the district's resources to help ranchers save grass pasture obviously threatened by grasshoppers." Using the HOPPER computer model (previously downloaded from the Internet), he estimated the return and decided on the best treatment method.

"We discovered that we would spend \$4 per acre in an effort to save \$1.50 per acre of grass. The ranchers quickly realized they could purchase hay to replace lost forage and save money. The program showed us we would also have very little effect on next year's population. It also showed us that we should initiate any control effort sooner in the year than we have done in the past."

Other domestic PPQ programs include a quarantine program to prevent the artificial spread of the European gypsy moth from infested areas in the Northeastern United States through movement of outdoor household goods and other articles; quarantines to prevent the spread of imported fire ants through movement of plant nursery material from infested areas; and releasing irradiated sterile pink bollworm moths to keep this insect out of cotton in California's San Joaquin Valley.

## Domestic Animal Health Programs

Protecting the health of the Nation's livestock and poultry industries is the responsibility of APHIS' Veterinary Services (VS).

VS veterinary medical officers and animal health technicians work with their counterparts in the States and with livestock producers to carry out cooperative programs to control and eradicate certain animal diseases. The decision to begin a nationwide campaign against a domestic animal disease is based on a number of factors, the most important of which is: "Are producers and the livestock industry a leading force in the campaign?"

This organized effort against livestock diseases began in 1884 when Congress created a special agency within USDA to combat bovine pleuropneumonia—a dreaded cattle disease that was crippling exports as well as taking a heavy toll on domestic cattle. Within 8 years, contagious bovine pleuropneumonia had been eradicated and this campaign set the pattern for subsequent animal disease control and eradication programs.

To date, 13 serious livestock and poultry diseases have been eradicated from the United States. They are:

<i>Year</i>	<i>Disease</i>
1892	Contagious bovine pleuropneumonia
1929	Foot-and-mouth disease
1929	Fowl plague
1934	Glanders
1942	Dourine
1943	Texas cattle fever
1959	Vesicular exanthema (VE)
1959 & 66	Screwworms (southeast & southwest)
1971	Venezuelan equine encephalitis
1973	Sheep scabies
1974	Exotic Newcastle disease
1978	Classical swine fever
1985	Lethal avian influenza

Current VS disease eradication programs include cooperative State-Federal efforts directed at cattle and swine brucellosis, bovine tuberculosis, and pseudorabies in swine. The following table shows the status of States in these programs.

Disease control and eradication measures include quarantines to stop the movement of possibly infected or exposed animals, testing and examination to detect infection, destruction of infected (sometimes exposed) animals to prevent further disease spread, treatment to eliminate parasites, vaccination in some cases, and cleaning and disinfection of contaminated premises. In addition to the programs listed above, APHIS also cooperates with States in a voluntary Flock Certification program to combat scrapie in sheep and goats. By April 1998, 260 sheep and goat flocks had been enrolled in the certification program. A current listing of enrolled flock, by State and by breed, is available on the World Wide Web (<http://www.aphis.usda.gov/vs/scrapie/status.html>).

APHIS animal health programs are carried out by a field force of about 250 veterinarians and 360 lay inspectors working out of area offices (usually located in State capitals). Laboratory support for these programs is supplied by APHIS' National Veterinary Services Laboratories (NVSL) at Ames, IA, and Plum Island, NY, which are centers of excellence in the diagnostic sciences and an integral part of APHIS' animal health programs.

Under the Virus-Serum-Toxin Act of 1913, APHIS enforces regulations to assure that animal vaccines and other veterinary biologics are safe, pure, potent, and effective. Veterinary biologics are products designed to diagnose, prevent, or treat animal diseases. They are used to protect or diagnose disease in a variety of domestic animals, including farm animals, household pets, poultry, fish, and fur bearers.

Veterinarians and other professionals in the APHIS VS Center for Veterinary Biologics regulate and license veterinary biologics as well as the facilities where they are produced. They also inspect and monitor the production of veterinary biologics,

State	<i>Cattle</i> Brucellosis*	<i>Swine</i> Brucellosis**	<i>Cattle</i> TB***	<i>Swine</i> Pseudorabies****
AL	FREE	STAGE 2	FREE	FREE
AK	FREE	FREE	FREE	FREE
AZ	FREE	FREE	FREE	FREE
AR	FREE	STAGE 2	FREE	STAGE 3/4
CA	FREE	FREE	M-A	STAGE 3
CO	FREE	FREE	FREE	FREE
CT	FREE	FREE	FREE	FREE
DE	FREE	FREE	FREE	FREE
FL	FREE	STAGE 2	FREE	STAGE 3
GA	FREE	FREE	FREE	STAGE 4
HI	FREE	FREE	SUSP.M-A	STAGE 4
ID	FREE	FREE	FREE	FREE
IL	FREE	FREE	FREE	STAGE 3
IN	FREE	FREE	FREE	STAGE 2/3
IA	FREE	FREE	FREE	STAGE 2/3
KS	CLASS A	FREE	FREE	STAGE 3
KY	FREE	FREE	FREE	FREE
LA	FREE	STAGE 2	FREE	STAGE 3
ME	FREE	FREE	FREE	FREE
MD	FREE	FREE	FREE	FREE
MA	FREE	FREE	FREE	STAGE 4
MI	FREE	FREE	FREE	STAGE 3
MN	FREE	FREE	FREE	STAGE 2/3
MS	CLASS A	FREE	FREE	FREE
MO	CLASS A	FREE	FREE	STAGE 4
MT	FREE	FREE	FREE	FREE
NE	FREE	FREE	FREE	STAGE 3
NV	FREE	FREE	FREE	FREE
NH	FREE	FREE	FREE	FREE
NJ	FREE	FREE	FREE	STAGE 3
NM	FREE	FREE	M-A	FREE
NY	FREE	FREE	FREE	FREE
NC	FREE	FREE	FREE	STAGE 2/3
ND	FREE	FREE	FREE	FREE
OH	FREE	FREE	FREE	STAGE 3
OK	CLASS A	STAGE 2	FREE	STAGE 4
OR	FREE	FREE	FREE	FREE
PA	FREE	FREE	M-A	STAGE 3
PR	FREE	FREE	M-A	FREE
RI	FREE	FREE	FREE	FREE
SC	FREE	STAGE 2	FREE	FREE
SD	CLASS A	FREE	FREE	STAGE 3/4
TN	FREE	FREE	FREE	FREE
TX	CLASS A	STAGE 2	M-A	STAGE 3

UT	FREE	FREE	FREE	FREE
VT	FREE	FREE	FREE	FREE
VI	FREE	FREE	FREE	FREE
VA	FREE	FREE	FREE	FREE
WA	FREE	FREE	FREE	FREE
WV	FREE	FREE	FREE	FREE
WI	FREE	FREE	FREE	STAGE 3/4
WY	FREE	FREE	FREE	FREE

\* Class A (less than 0.25 percent herd infection rate) or Class Free

\*\* Stage 1,2, or Free

\*\*\* Modified Accredited (M-A) or Accredited Free (Free)

\*\*\*\* Stage 1,2,3,4, or Free

including both genetically engineered products and products produced by conventional means.

Since the first genetically engineered vaccine was licensed in 1979, a total of 79 such biologics have been licensed; all but 20 are still being produced. More than a half century ago, there were perhaps half a dozen animal vaccines and other biologics available to farmers. Now there are 2,379 active product licenses and 110 licensed manufacturers.

## Monitoring Plant and Animal Pests and Diseases

In order to combat plant pests and animal diseases, it’s important to know their number and where they are located.

To monitor plant pests, APHIS PPQ works with the States in a project called the Cooperative Agricultural Pest Survey, which started in 1982 as a pilot project. Survey data on weeds, insects, and plant diseases and pests is entered into a nationwide database, the National Agricultural Pest Information System (NAPIS). This database can be accessed from anywhere in the country by persons with an authorized account.

By accessing NAPIS, users can retrieve the latest data on pests. NAPIS data can assist pest forecasting, early pest warning, quicker and more precise delimiting efforts, and better planning for plant pest eradication or control efforts. Survey data—which can reflect the absence as well as the presence of pests—also helps U.S. exports, assuring foreign countries that our commodities are free of specific pests and diseases.

There are more than a million records in the NAPIS database. Approximately 200 Federal and State agencies use NAPIS. NAPIS contains survey data files as well as text and graphics files. The data can be downloaded and analyzed with geographic information systems (GIS) to provide graphic representation of information. For example, locations of pine shoot beetle detections can be shown graphically as well as where and how often surveys have been conducted for the beetle. This information is used by the State and Federal agencies regulating this pest.

Describing animal health and management in the United States is the goal of the APHIS National Animal Health Monitoring System (NAHMS). This program, which is conducted by APHIS VS, began in 1983.

NAHMS compiles statistics and information from existing data bases and gathers new data through short- and long-term targeted studies to present a baseline picture of animal agriculture. This information then can be used to predict trends and improve animal production efficiency, and food quality. NAHMS provides statistically sound data concerning U.S. livestock and poultry diseases and disease conditions, along with their costs and associated production practices. By the end of 1997, NAHMS had conducted nine national studies on U.S. animal populations: swine (2), dairy (2), beef cow/calf (2), beef feedlot (1), sheep (1), and catfish (1). Sentinel monitoring of morbidity and mortality in beef feedlots is an ongoing monitoring project, as is bulk tank somatic cell count. Marek's disease in broiler operations, and poultry enteritis and mortality syndrome (PEMS) in turkeys were among NAHMS' short-term projects.

Information from NAHMS aids a broad group of users throughout agriculture. For instance, baseline animal health and management data from NAHMS national studies are helping analysts identify associations between *Salmonella* and cattle management. NAHMS data are also helping researchers evaluate management practices that contribute to the occurrence of Johne's disease and digital dermatitis in cattle. State and national officials, industry groups, and producers apply NAHMS data and information in educational programs and in setting research priorities.

NAHMS information is available through the World Wide Web (<http://www.aphis.usda.gov/vs/ceah>); see the Center for Animal Health Monitoring.

## Regulating Biotechnology in Agriculture

Scientists use agricultural biotechnology with a variety of laboratory techniques, such as genetic engineering, to improve plants, animals, and microorganisms. Recent discoveries have led to virus-resistant crops such as cucumbers, tomatoes, and potatoes; to better vaccines and diagnostic kits used for diseases of horses, chickens, and swine; and even to new and improved varieties of commercial flowers.

Since 1987, APHIS' role in agricultural biotechnology has been to manage and oversee regulations to ensure the safe and rapid development of the products of biotechnology. Applicants under APHIS' effective regulations and practical guidelines can safely test—outside of the physical containment of the laboratory—genetically engineered organisms.

APHIS officials issue permits or acknowledge notification for the importation, interstate movement, or field testing of genetically engineered plants, microorganisms, and invertebrates that are developed from components from plant pathogenic material.

Since 1987, APHIS has issued more than 3,800 release permits and notifications at more than 17,000 sites in the United States and no environmental problems have resulted from these field tests. The biotechnology regulations also provide for an exemption process once it has been established that a genetically engineered product does not present a plant pest risk. Under this process, applicants can petition APHIS for a determination of nonregulated status for specific genetically engineered products. Over 2-1/2 years, 20 new engineered plant lines in 11 crops were proven safe and no longer need to be regulated by APHIS. One was the first genetically engineered sugar beet, which is herbicide tolerant.

The four recent deregulated include:

- tomato line with insect resistance,
- rapeseed (canola) line with herbicide tolerance,
- corn line with herbicide tolerance, and
- chicory (salad green) line with male sterility.

APHIS biotechnology personnel meet with regulatory officials from other nations on a regular basis to foster regulatory harmonization. These discussions are intended to help ensure that requirements imposed by other countries are as consistent as possible with U.S. requirements and that our trading partners are kept informed of biotechnology regulatory developments.

## Controlling Wildlife Damage

The mission of APHIS' Wildlife Services (WS) program is to provide Federal leadership in managing problems caused by wildlife. Wildlife is a significant public resource that is greatly valued by the American public. But by its very nature, wildlife also can damage agricultural and industrial resources, pose risks to human health and safety, and affect other natural resources. WS helps solve problems that occur when human activity and wildlife are in conflict with one another. In doing so, WS attempts to develop and use wildlife management strategies that are biologically, environmentally, and socially sound.

The need for effective and environmentally sound wildlife damage management is rising dramatically. There are several reasons for this. Increasing suburban development intrudes upon traditional wildlife habitats. Population explosions of some adaptable wildlife species, such as coyotes, deer, and geese, pose increasing risks to human activities. At the same time, advances in science and technology are providing alternative methods for solving wildlife problems.

APHIS' National Wildlife Research Center (NWRC), the world's only research facility devoted entirely to the development of methods for managing wildlife damage, accounts for about one-fourth of WS' budget. In existence since the 1940's, NWRC has an integrated, multi-disciplinary research program that is uniquely suited to provide scientific information and solutions to wildlife damage problems.

A few examples of current NWRC projects include:

- developing chemosensory repellants and attractants for birds and mammals,
- finding methods to reduce threats to human safety when birds collide with airplanes,
- finding ways to control the brown tree snake in Guam,
- engineering an immunocontraceptive vaccine and delivery system to help resolve problems caused by wildlife overpopulation,
- reducing damage by birds to commercial fish production and cereal crops,
- studying coyote biology and behavior to develop techniques for protecting livestock from these predators,
- looking at ways to solve wildlife problems in urban areas involving such things as deer in backyards, squirrels damage to telephone lines, and geese on golf courses,
- reducing beaver damage to agricultural resources,
- developing methods to reduce wildlife damage to forest resources, and
- finding effective methods for reducing rodent damage to agricultural crops.

More than half of U.S. farmers experience economic loss from animal damage. In 1994, sheep and goat producers lost an estimated \$17.7 million due to predation. In 1995, cattle producers' losses to predators were worth \$39.6 million. During this year, coyotes alone caused \$11.5 million in sheep losses and \$21.8 million in cattle losses nationwide. A survey in 1993 showed that wildlife caused \$92 million in losses to corn producers in the top 10 corn-producing States.

Additionally, beavers in the Southeastern United States cause an estimated \$100 million in damage each year to public and private property, while Mississippi catfish farmers lose nearly \$6 million worth of fingerlings to fish-eating birds. During 1 year in Pennsylvania, white-tailed deer caused crop losses totaling \$30 million. Overall, bird populations cause an estimated annual loss to U.S. agriculture of \$100 million. In 1994, the annual dollar loss to agriculture in the United States from wildlife was between \$600 million and \$1.6 billion.

The National Agricultural Statistics Service surveyed 1,465 catfish producers in January of 1997. Results indicated that 68 percent of the respondents spent some effort to avoid wildlife-related losses to their catfish crops. Of all losses reported, 67 percent of the catfish were depredated by wildlife, primarily birds. In Mississippi, where 81 percent of wildlife damage was reported, cormorants were cited as the cause 53 percent of the time. Total cost of wildlife-related damage prevention of further damage was projected to have cost catfish producers \$17 million in 1996.

APHIS deals with a wide variety of wildlife problems, ranging from coyote predation on lambs to protecting endangered species from predation by other wildlife. Here are a few examples of WS efforts:

- A farmer in the State of Washington requested WS assistance after thousands of Canada geese congregated on his 43-acre field of carrots and began eating his crop, which had a potential market value of more than \$7,000 an acre. Noise-making devices and other scare tactics recommended by WS were successful in frightening the geese and keeping them out of his field.
- WS is conducting a program to reduce the impact of Canada geese on agricultural crops in southwestern Washington State. WS provides services to farmers using a variety of nonlethal methods to haze geese grazing on pastures and crops. These services are part of a cooperative effort involving the U.S. Fish and Wildlife Service (FWS), the Washington Department of Fish and Wildlife, and WS. The program has proven to be both effective and popular with farmers in the service area. During February, producers petitioned FWS, who is funding the program, to extend the period of service provided by WS. This resulted in FWS providing an additional \$200,000 to WS for field operations. These funds enabled WS to extend control activities into early May, when Canada goose damage to pastures and crops typically starts to decrease.
- A mountain lion that killed a dog and attacked another dog and a mule in Colorado was captured by a WS specialist and officials from the Colorado Division of Wildlife. The lion was released unharmed in a remote site about 165 miles from the community where the attacks occurred.



- On March 18, 1999, red-tailed hawks struck a 737 commercial airliner during a landing at the Eppley Air Field in Omaha, NE, causing an estimated \$300,000 worth of damage. WS is providing various types of technical advice and direct control assistance to reduce hazards at the airport. In a cooperative effort with airport officials, FWS, and WS—including NWRC—initiated a trapping program to capture red-tailed hawks and American kestrels and relocate them approximately 150 miles from the airport.
- WS' NWRC has entered into a new 5-year interagency agreement with the Federal Aviation Administration (FAA) to conduct research on understanding and reducing bird hazards to aircraft. This new agreement, covering 1999-2003, replaces an agreement that had been in place from 1991 to 1998. Research tasks to be conducted by NWRC for FAA under the new arrangement include: habitat management on and near airports to reduce bird activity, development and evaluation of bird repellent and frightening methods for airports, management and analysis of the National Wildlife Strike Database, and development of an FAA wildlife control manual for use by airport operators nationwide. The research will be coordinated out of NWRC's Ohio field station. Bird and other wildlife collisions with aircraft occasionally result in the loss of life and cost U.S. aviation over \$300 million per year.
- Livestock guarding dogs, predator-proof fencing, and the "Electronic Guard" (a device developed by WS that combines a flashing strobe light and a siren to scare coyotes) are examples of nonlethal ways to minimize damage from predators.
- WS helps protect many threatened or endangered species from predation, including the California least tern and light-footed clapper rail, the San Clemente Island loggerhead strike, Louisiana black bear, the Aleutian Canada goose, the black-footed ferret, the Louisiana pearl shell (mussel), and two species of endangered sea turtles.
- Since 1995, WS has cooperated with Texas officials in a multi-year program to help combat rabies epidemics in southern and central parts of the State. WS cooperated in the development of coyote bait units containing a genetically engineered rabies vaccine approved by APHIS for use in the project. Cumulatively, since 1995, more than 11 million bait units have been dropped over an area of 171,000 square miles in Texas. The goal of the project is to create a buffer zone of immunized coyotes to help prevent the further spread of canine rabies across Texas into more heavily populated areas. January 1999 marked the fifth year that WS has participated in the project to prevent the spread of canine rabies in both coyotes and foxes. The 1999 operation of the project was concluded in 26 days and involved the distribution of approximately 2.7 million bait units of an area of nearly 34,000 square miles in south and central Texas. The project has led to a marked decrease in the incidence of rabies in wild canids.

## Humane Care of Animals

APHIS administers two laws that seek to ensure the humane handling of animals: the Animal Welfare Act (AWA) and the Horse Protection Act (HPA).

For more than a quarter century, USDA has enforced the AWA and its standards and regulations to prevent the trafficking in lost and stolen pets and protect animals from inhumane treatment and neglect. Congress passed the AWA in 1966 and strengthened the law through amendments in 1970, 1976, 1985, and 1990.

The AWA prohibits staged dogfights, bear and raccoon baiting, and similar animal fighting ventures. It also requires that minimum standards of care and treatment be provided for most warmblooded animals bred for commercial sale, used in research, transported commercially, or exhibited to the public. This includes animals exhibited in zoos, circuses, and marine mammal facilities as well as pets transported on commercial airlines.

Individuals who operate regulated businesses must be licensed or registered with USDA and provide their animals with adequate care and treatment in the areas of housing, handling, sanitation, nutrition, water, veterinary care, and protection from extremes of weather and temperature. They must also keep accurate acquisition and disposition records and a description of every animal that comes into their possession. In addition:

- Dealers must hold the animals they acquire for a period of 5 to 10 days to verify the animals' origin and allow pet owners an opportunity to locate a missing pet.
- Research facilities must provide dogs with the opportunity for exercise; promote the psychological well-being of primates used in laboratories; and give all regulated animals anesthesia or pain-relieving medication to minimize any pain or distress caused by research if the experiment allows.
- Research facilities must establish an institutional animal care and use committee to oversee the use of animals in experiments. This committee reviews research protocols and facilities to ensure they are in compliance with the AWA. It also ensures that researchers explore alternatives to painful experiments and ways to reduce the numbers of animals used. The committee must be composed of at least three members, including one veterinarian and one person who is not affiliated with the facility in any way.

In enforcing the AWA, APHIS conducts preclicensing inspections of licensees. Before issuing a license, applicants must be in compliance with all standards and regulations under the AWA.

APHIS also conducts randomly scheduled unannounced inspections to ensure that all regulated facilities continue to comply with the Act. If an inspection reveals deficiencies in meeting the AWA standards and regulations, the inspector instructs the licensee or registrant to correct the problems within a given timeframe. If deficiencies remain uncorrected at the followup inspection, APHIS documents the facility's deficiencies and considers possible legal action. Such action could include fines and/or license suspensions or revocations.

In FY 1998, APHIS pursued numerous cases against individuals who were not in compliance with the AWA. The tables below provide data on APHIS' inspection and enforcement efforts for FY 1996-98.

#### Compliance Inspections, FY 1996–98

<i>FY</i>	<i>Total facilities (sites)</i>	<i>Total compliance inspections</i>
1998	7,773 (10,393)	10,709
1997	7,789 (10,534)	12,056
1996	7,837 (10,366)	12,635

#### Sanctions Imposed, FY 1996–98

<i>FY</i>	<i>Fines Imposed</i>	<i>Revocations, suspensions, and disqualifications</i>
1998	\$378,900	34
1997	\$868,440	43
1996	\$1,052,225	29

USDA also enforces the HPA, which Congress enacted in 1970 (and amended in 1976), to end the practice of “soring” the limbs of Tennessee walking horses and other gaited breeds. The HPA prohibits persons from transporting sore horses to show, sales, and auctions, and from entering and exhibiting sore horses in such events.

Soring practices occur primarily by two means: mechanical and chemical. Regardless of the method, soring is a deliberate attempt to alter the gait of a horse by creating a superficial irritation or lesion that is aggravated by training or performing. Soring practices are primarily confined to the pasterns of the horse’s feet.

The management of horse shows, sales, and actions is authorized to employ individuals, called Designated Qualified Persons or DQP’s, to examine horses for compliance with the HPA and the horse protection regulations. DQP’s are required to disqualify from exhibition any horse that is sore or otherwise not in compliance with the regulations (which, among other things, prohibit the use of certain devices and substances on horses’ feet). Even if show management has hired a licensed DQP, it is a violation of the HPA to allow a sore horse to be exhibited if that DQP, or the USDA, has informed management that the horse is sore.

USDA veterinarians also attend shows, sales, and actions in order to ensure that sore horses are not exhibited and to evaluate the performance of the DQP’s at these events. USDA veterinarians will also examine horses for compliance with the act, if the DQP did not perform a complete examination or if they suspect that a horse is sore.

The HPA provides for both civil and criminal sanctions for violations. The Secretary is authorized to impose a civil penalty of up to \$2,000 for each violation of the HPA, after notice and an opportunity for a hearing, and may disqualify the violator from participating in shows, sales, and auctions for not less than 1 year for the first violation and not less than 5 years for any subsequent violation. Criminal violations are punishable by a fine of up to \$3,000 for the first conviction, and up to \$5,000 for any subsequent conviction, as well as imprisonment for up to 1 year for a first conviction, and up to 2 years for a subsequent conviction.

## Aquaculture

APHIS provides services to the aquaculture industry in a number of areas. Aquaculture is the fastest growing segment of U.S. agriculture, surpassing in value most domestic fruit, vegetable, and nut crops. Between 1980 and 1990, the industry experienced a 400-percent increase in growth; it is now estimated to be worth approximately \$1.5 billion. The aquaculture industry provides about 300,000 jobs nationwide.

Current APHIS services include licensing of fish vaccines and other biologics under the Virus-Serum-Toxin Act; controlling birds and damage-causing animals; and providing health certification services for exports. We are currently working to expand our aquatic animal health activities and underlying authority to support industry efforts to increase exports of aquacultural products around the world, for coordinating interstate regulation, and for protection from the entry of animal pests and diseases. Examples include:

- European Union (EU) animal health negotiators have been extremely concerned that U.S. aquatic health regulations are not equivalent to those of the EU, with the main concern centering around the fact that the United States does not have a single Federal agency with legal authority to monitor, prevent, and control outbreaks of aquatic animal disease. Currently, U.S. responsibility in this area is divided among four Federal departments (Agriculture, Interior, Commerce, and Health and Human Services) and the 50 States. APHIS is working with the Joint Subcommittee on Aquaculture's Task Force on Aquatic Animal Health to clarify Federal agency roles, avoid duplication of authority, and achieve adequate protection of U.S. aquatic animals, both wild and cultivated.
- APHIS has produced a video about health certification procedures for the export of aquacultural products. The goal of the video—which uses the example of exporting trout eggs from Washington State to Chile—is to provide animal health and natural resources officials and aquacultural producers with a model of how to implement an aquatic health protocol for exportation of products to a foreign country.
- APHIS' WS program hired three wildlife biologists last July, placing them in Florida, Alabama, and Mississippi to assist aquaculture producers with bird depredation problems. These biologists are helping develop new methods for controlling fish-eating birds, providing onsite assistance to aquaculture producers experiencing depredation problems, and developing management plans for fish-eating bird species in the three States.
- APHIS' VS Centers for Epidemiology and Animal Health (CEAH) completed an overview of the U.S. aquaculture industry, including an analysis of focus on trends in farm size, geographic distribution of aquatic species, and a description of the industry's diversity. During 1997, CEAH worked with USDA's National Agricultural Statistics Service on a comprehensive national study of the U.S. catfish industry.

Recent outbreaks of Taura Syndrome Virus in Texas and Hawaii have caused millions of dollars in losses to shrimp producers in those States. This disease is thought to have been introduced via shrimp products imported from South America.

APHIS officials have not provided any assistance to the producers affected by this outbreak, nor have they assisted in efforts to control and prevent spread of the disease. To rectify this situation, APHIS published an Advance Notice of Proposed Rulemaking seeking comments on treating farm-raised finfish as livestock under the animal quarantine laws. This could lead to a coordinated Federal regulatory program to prevent the introduction and spread of aquatic plants, animals, and organisms that could harm commercial aquaculture production.

## ■ Grain Inspection, Packers and Stockyards Administration

The Grain Inspection, Packers and Stockyards Administration (GIPSA) facilitates the marketing of livestock, poultry, meat, grain, oilseeds, and related agricultural products and promotes fair and competitive trading practices for the overall benefit of consumers and American agriculture.

GIPSA, like its sister agencies in USDA's Marketing and Regulatory Programs, is working to ensure a productive and competitive global marketplace for U.S. agricultural products. The agency's Federal Grain Inspection Service (FGIS) provides the U.S. grain market with Federal quality standards and a uniform system for applying them. GIPSA's Packers and Stockyards Programs ensure open and competitive markets for livestock, meat, and poultry.

### Federal Grain Inspection Program

Through its Federal Grain Inspection Program, GIPSA facilitates the marketing of grain, oilseeds, pulses, rice, and related commodities. This program serves American agriculture by providing descriptions (grades) and testing methodologies for measuring the quality and quantity of grain, rice, edible beans, and related commodities. GIPSA also provides a wide range of inspection and weighing services, on a fee basis, through the official grain inspection and weighing system, a unique partnership of Federal, State, and private laboratories. In FY 1997, the official system performed over 2 million inspections on 226 million metric tons of grain and related commodities.

Specifically, under the U.S. Grain Standards Act, and those provisions of the Agricultural Marketing Act of 1946 (AMA) that relate to inspection of rice, pulses, lentils, and processed grain products, the Federal Grain Inspection Program:

- Establishes official U.S. grading standards and testing procedures for eight grains (barley, corn, oats, rye, sorghum, triticale, wheat, and mixed grain), for oilseeds (canola, flaxseed, soybeans, and sunflower seed), rice, lentils, dry peas, and a variety of edible beans.
- Provides American agriculture and customers of U.S. grain around the world with a national inspection and weighing system that applies the official grading and testing standards and procedures in a uniform, accurate, and impartial manner.